

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 6

	Complete If Known
Application Number	09/970,453
Filing Date	October 2, 2001
First Named Inventor	Shulamit Eyal
Art Unit	1641
Examiner Name	Lisa V. Cook
Attorney Docket Number	20174C-002410US

PTO/SB/08A (08-03)

			U.S. PATENT DO	CUMENTS+	
		Document Number			
Examiner Initials*	Cite No.1	Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
LVC	A47	US-4,992,312	02-12-1991	Frisch	
UC.	A48	US-5,788,468	08-04-1998	Dewa et al.	
LVC	A49	US-6,345,502 B1	02-12-2002	Tai et al.	
LYC	A50	US-6,767,706 B2	07-27-2004	Quake et al.	
		_US			
		US-			
		US-			
		-US			

		<u> </u>	F	OREIGN PA	TENT DOCUME	NTS		
	CH-	Foreig	n Patent Docum	ent		Name of Patentee or	Pages, Columns, Lines, Where Relevant	
Examiner Initials*	Cite No.	Country Code ³	Number ⁴	Kind Code ⁶ (<i>if known</i>)	Publication Date MM-DD-YYYY	Applicant of Cited Document	Passages or Relevant Figures Appear	⊤್
4C	B13	wo	99/00655	A2	01-07-1999			-0-
IJC	B14	wo	99/04361	A1	01-28-1999			6
IVC	B15	wo	99/52633	A1	10-21-1999			0-
IYC	B16	wo	00/00678	A1	01-06-2000			-0-
WC	B17	wo	00/43748	A1	07-27-2000			
LYC	B18	wo	01/09595	A2	02-08-2001			-0-
LYC	B19	wo	01/09595	A3	02-08-2001	· · · · · · · · · · · · · · · · · · ·		-0-
								0

Examiner Signature	Clisa & Cook	Date Considered	413/06

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Applicant's unique citation designation number (optional).

Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04.

Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

Applicant is to place a check mark here if English tanguage Translation is attached.

Substitute for form 14498/PTO		Complete if Known
	Application Number	09/970,453
INFORMATION DISCLOSUR	rining Date	October 2, 2001
STATEMENT BY APPLICAN	First Named Inventor	Shulamit Eyal
	Art Unit	1641
(use as many sheets as necessary)	Examiner Name	Lisa V. Cook
Sheet 2 of 6	Attorney Docket Number	20174C-002410US

		NON PATENT LITERATURE DOCUMENTS		_
Examiner Initials *	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	Т	2
WC1	C63	"Chapter 9: Microfluidic Devices," Micromachined Transducers Sourcebook, pp. 779-882, 1998	Ш	
	C64	"Last Chance For Micromachines," The Economist Technology Quarterly, printed from website http://www.economist.com/science/displayStory.cfm?Story_ID=442930 on 1/25/2001, 8 pages, 12/7/2000		
	C65	ANDERSON, ROLFE C. et al., "Microfluidic Biochemical Analysis System," Transducers '97, 1997 International Conference on Solid-State Sensors and Actuators, Chicago, Illinois, pp. 477-480, 6/16-19/1997		
	C66	ANGELL, JAMES B. et al., "Silicon Micromechanical Devices," Scientific American, pp. cover, 44-55, 4/1983		
	C67	ARMANI, DENIZ et al., "Re-Configurable Fluid Circuits By PDMS Elastomer Micromachining," IEEE Int. Conf. Micro Electro Mech. Syst. Tech. Digest, Vol. 12, pp. 222-227, 1999		
	C68	ASHKIN, A. et al., "Optical Trapping And Manipulation Of Single Cells Using Infrared Laser Beams," Nature, Vol. 330, No. 24, pp. 769-771, 12/31/1987		
	C69	ASHKIN, A. et al., "Optical Trapping And Manipulation Of Viruses And Bacteria," Science, Vol. 235, pp. 1517-1520, 3/20/1987		
	C70	BALLANTYNE, J. P. et al., "Selective Area Metallization By Electron-Beam Controlled Direct Metallic Deposition," J. Vac. Sci. Technol., Vol. 10, No. 6, pp. 1094-1097, 11/1973		
	C71	"Biochips," Nature Biotechnology, Vol. 18, Supplement 2000, pp. IT43-IT44, 2000	П	
	C72	BLOOMSTEIN, T. M. et al., "Laser-Chemical Three-Dimensional Writing For Microelectromechanics And Application To Standard-Cell Microfluidics," J. Vac. Sci. Technol. B, Vol. 10, No. 6, pp. 2671-2674, 11/1992		
	C73	BOUSSE, LUC et al., "Electrokinetically Controlled Microfluidic Analysis Systems," Annu. Rev. Biophys. Biomol. Struct., Vol. 29, pp. 155-181, 2000		
	C74	BUICAN, TUDOR N. et al., "Automated Single-Cell Manipulation And Sorting By Light Trapping," Applied Optics, Vol. 26, No. 24, pp. 5311-5316, 12/15/1987		
	C75	BURBAUM, JONATHAN J. et al., "New Technologies For High-Throughput Screening," Current Opinion in Chemical Biology, Vol. 1, pp. 72-78, 1997		
	C76	BUSCH, J. et al., "Methods For The Differentiation Of Microorganisms, Journal of Chromatography B, Vol. 722, pp. 263-278, 1999		
1	C77	CAI, WEIWEN, et al., "High-Resolution Restriction Maps Of Bacterial Artificial Chromosomes Constructed By Optical Mapping," Proc. Natl. Acad. Sci. USA, Vol. 95, pp. 3390-3395, 3/1998		
UCI	C78	CALKINS, KATHRYN, "Mycometrix: Rubber Chips," BioCentury, 2 pages, 10/16/2000	\prod	

		<u> </u>		
Examiner Signature	Quoa. X	Cook	Date Considered	7/13/06

Substitute	for form 1449B/PT	0		Complete if Known			
		- DIO	OL COLIDE	Application Number	09/970,453		
· ·			CLOSURE	Filing Date	October 2, 2001		
STAT	EMENT B	YA	PPLICANT	First Named Inventor	Shulamit Eyal		
				Art Unit	1641 .		
(4	ise as many sh	eets as	necessary)	Examiner Name	Lisa V. Cook		
Sheet	3	of	6	. Attorney Docket Number	20174C-002410US		

		NON PATENT LITERATURE DOCUMENTS		
Examiner Initials *	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²	
LYC-1	C79	CASTRO, ALONSO et al., "Fluorescence Detection And Size Measurement Of Single DNA Molecules," Analytical Chemistry, Vol. 85, No. 7, pp. 849-852, 4/1/1993		
	C80	CHIU, CHI-SUNG et al., "Single Molecule Measurements Calibrate Green Fluorescent Protein Surface Densities On Transparent Beads For Use With 'Knock-In' Animals And Other Expression Systems," Journal of Neuroscience Methods, Vol. 105, pp. 55-63, 2001		
	C81	CHOU, HOU-PU et al., "A Microfabricated Rotary Pump," Biomedical Microdevices, Vol. 3, No. 4, pp. 323-330, 2001		
	C82	CHOU, HOU-PU et al., "Disposable Microdevices For DNA Analysis And Cell Sorting," Proc. Solid- State Sensor and Actuator Workshop, Hilton Head, South Carolina, pp. 11-14, 6/8-11/1998		
	C83	CHOU, HOU-PU et al., "Integrated Elastomer Fluidic Lab-On-A-Chip-Surface Patterning And DNA Diagnostics," Proceedings of the Solid State Actuator and Sensor Workshop, Hilton Head, South Carolina, 4 pages, 2000		
	C84	CHOU, HOU-PU et al., "Microfabricated Devices For Sizing DNA And Sorting Cells," Micro- and Nanofabricated Structures and Devices for Biomedical Environmental Applications, Proceedings of SPIE, Vol. 3258, pp. 181-187, 1998		_
	C85	CHOU, HOU-PU et al., "Multiple Disease Diagnostics On A Single Chip," Biophysics Lab, Caltech, pp. 1-4, 3/1/2000		
	C86	"Electro Microfluidic Dual In-Line Package (EMDIP)," Sandia National Laboratories, 2 pages, no date		_
	C87	FETTINGER, J. C. et al., "Stacked Modules For Micro Flow Systems In Chemical Analysis: Concept And Studies Using An Enlarged Model," Sensors and Actuators B, Vol. 17, pp. 19-25, 1993		
	C88	FIEDLER, STEFAN et al., "Dielectrophoretic Sorting Of Particles And Cells In A Microsystem," Analytical Chemistry, Vol. 70, No. 9, pp. 1909-1915, 5/1/1998		
	C89	FOLCH, A. et al., "Molding Of Deep Polydimethylsiloxane Microstructures For Microfluidics And Biological Applications," Journal of Biomechanical Engineering, Vol. 121, pp. 28-34, 2/1999		
İ	C90	FULWYLER, M. J., "Electronic Separation Of Biological Cells By Volume," Science, pp. 910-911, 11/1965		
	C91	GALAMBOS, PAUL et al., "Electrical And Fluidic Packaging Of Surface Micromachined Electro- Microfluidic Devices," 3 pages, no date		
	C92	GAO, JUN et al., "Integrated Microfluidic System Enabling Protein Digestion, Peptide Separation, And Protein Identification," Analytical Chemistry, Vol. 73, No. 11, pp. 2648-2655, 6/1/2001		
	C93	GOODWIN, PETER M. et al., "Rapid Sizing Of Individual Fluorescently Stained DNA Fragments By Flow Cytometry," Nucleic Acids Research, Vol. 21, No. 4, pp. 803-806, 1993		
IJCI	C94	GREENE, CHANA, "Characterizing The Properties Of PDMS," pp. 1-11, Summer 2000	\prod	_

		<i>1</i>			
Examiner Signature	Risa. X	Cook	Date Considered	7/13/0c	

Substitute f	or form 1449B/PTC	<u> </u>			Complete if Known
	NFORMATION DISCLOSU	01 001105	Application Number	09/970,453	
				Filing Date	October 2, 2001
STAT	EMENT B	ΥA	PPLICANT	First Named Inventor	Shulamit Eyal
				Art Unit	1641
(u	(use as many sheets as necessary)			Examiner Name	Lisa V. Cook
Sheet	4	of	6	Attorney Docket Number	20174C-002410US

		NON PATENT LITERATURE DOCUMENTS	
Examiner Initials *	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or.country where published.	T²
WCI	C95	GUÉRIN, L. J. et al., "Simple And Low Cost Fabrication Of Embedded Micro-Channels By Using A New Thick-Film Photoplastic," Transducers '97, 1997 International Conference on Solid-State Sensors and Actuators, Chicago, Illinois, pp. 1419-1422, 6/18-19/1997	
	C96	HENION, JACK et al., "Capillary Electrophoresis/Mass Spectrometry: From One Meter Capillaries To Chip-Based Devices," 2 pages, 1999	
	C97	HICKS, JENNIFER, "Genetics And Drug Discovery Dominate Microarray Research," R&D Magazine, pp. 28-33, 2/1999	
	C98	HOFMANN, OLIVER et al., "Modular Approach To Fabrication Of Three-Dimensional Microchannel Systems in PDMS - Application To Sheath Flow Microchips," Lab on a Chip, Vol. 1, pp. 108-114, 2001	
	C99	HORN, HOWARD, "Lab Chips Sector: Microtechnologies Are Changing Healthcare And More," Life Sciences, pp. 19-21, 3/20/2001	
	C100	JO, BYUNG-HO et al., "Fabrication Of Three-Dimensional Microfluidic Systems By Stacking Molded Polydimethylsiloxane (PDMS) Layers" SPIE, Vol. 3877, pp. 222-229, 9/1999	
	C101	JO, BYUNG-HO et al., "Three-Dimensional Micro-Channel Fabrication In Polydimethylsiloxane (PDMS) Elastomer," Journal of Microelectromechanical Systems, Vol. 9, No. 1, pp. 76-81, 3/2000	
	C102	KAGAN, C. R., "Organic-Inorganic Hybrid Materials As Semiconducting Channels In Thin-Film Field- Effect Transistors," Science, Vol. 286, pp. 945-947, 10/29/1999	
	C103	KAPUR, RAVI et al., "Fabrication And Selective Surface Modification Of 3-Dimensionally Textured Biomedical Polymers From Etched Silicon Substrates," Journal of Biomedical Materials Research, Vol. 33, pp. 205-216, 1996	
	C104	KELLER, RICHARD A. et al., "Single-Molecule Fluorescence Analysis In Solution," Applied Spectroscopy, Vol. 50, No. 7, pp. 12A-30A, 7/1996	
	C105	KHOO, MELVIN et al., "A Novel Micromachined Magnetic Membrane Microfluid Pump," pp. 1-4, no date	
	C106	KIM, ENOCH et al., "Polymer Microstructures Formed By Moulding In Capillaries," Nature, Vol. 376, pp. 581-584, 8/17/1995	
	C107	KIRK-OTHMER, "Concise Encyclopedia of Chemical Technology," John Wiley & Sons, 5 pages, no date	
	C108	KUMAR, AMIT et al., "Features Of Gold Having Micrometer To Centimeter Dimensions Can Be Formed Through A Combination Of Stamping With An Elastomeric Stamp And An Alkanethiol 'Ink' Followed By Chemical Etching," Appl. Phys. Lett., Vol. 63, No. 14, pp. 2002-2004, 10/4/1993	
	C109	KUMAR, AMIT et al., "Patterning Self-Assembled Monolayers: Applications In Materials Science," Langmuir, Vol. 10, pp. 1498-1511, 1994	
UC	C110	LAGALLY, ERIC T. et al., "Monolithic Integrated Microfluidic DNA Amplification And Capillary Electrophoresis Analysis System," Sensors and Actuators B, Vol. 63, pp. 138-146, 2000	

		7		
Examiner Signature	Ausa. X	Cock	Date Considered	2/13/06

Substitute for form 1449B/PTO				Complete if Known			
INFORMATION DISCLOSURE				Application Number	09/970,453		
				Filing Date	October 2, 2001		
STAT	STATEMENT BY APPLICANT			First Named Inventor	Shulamit Eyal		
				Art Unit	1641		
(6	(use as many sheets as necessary)			Examiner Name	Lisa V. Cook		
Sheet	5	of	6	Attomey Docket Number	20174C-002410US		

		NON PATENT LITERATURE DOCUMENTS				
Examiner Cite No.1		Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.				
WC1	C111	LAGALLY, E. T. et al., "Single-Molecule DNA Amplification And Analysis In An Integrated Microfluidic Device," Analytical Chemistry, Vol. 73, No. 3, pp. 565-570, 2/1/2001	1			
	C112	LAMMERINK, T. S. J. et al., "Modular Concept For Fluid Handling Systems," IEEE, pp. 389-394, 1996				
	C113	LESSARD, GUILLAUME A. et al., "A Scanning Apertureless Fluorescence Microscope," 8 pages, no date				
	C114	LICKLIDER, LARRY et al., "A Micromachined Chip-Based Electrospray Source For Mass Spectrometry," Analytical Chemistry, Vol. 72, No. 2, pp. 367-375, 1/15/2000				
	C115	MANZ, A. et al., "Micromachining Of Monocrystalline Silicon And Glass For Chemical Analysis Systems," Trends in Analytical Chemistry, Vol. 10, No. 5, pp. 144-149, 1991				
	C116	MARSHALL, SID, "Fundamental Changes Ahead For Lab Instrumentation," R&D Magazine, 5 pages, 2/1999	П			
	C117	MARSILI, RAY, "Lab-On-A-Chip Poised To Revolutionize Sample Prep," R&D Magazine, 5 pages, 2/1999				
	C118	MAULE, JOHN, "Pulsed-Field Gel Electrophoresis," Molecular Biotechnology, Vol. 9, pp. 107-126, 1998	$\ $			
	C119	MCDONALD, J. COOPER et al., "Fabrication Of Microfluidic Systems In Poly(dimethylsiloxane)," Electrophoresis, Vol. 21, pp. 27-40, 2000				
	C120	MELAMED, MYRON R. et al., "Flow Cytometry And Sorting," John Wiley & Sons, 32 pages, 1979				
	Ċ121	OLESCHUK, RICHARD D. et al., "Analytical Microdevices For Mass Spectrometry," Trends In Analytical Chemistry, Vol. 19, No. 6., pp. 379-388, 2000				
	C122	O'REILLY, MARIE-ANNE J. et al., "The Technique Of Pulsed Field Gel Electrophoresis And Its Impact On Molecular Immunology," Journal of Immunological Methods, Vol. 131, pp. 1-13, 1990				
	C123	PETTY, JEFFREY T. et al., "Characterization Of DNA Size Determination Of Small Fragments By Flow Cytometry," Anal. Chem., Vol. 67, pp. 1755-1761, 1995				
	C124	SAMAD, AKHTAR et al., "Optical Mapping: A Novel, Single-Molecule Approach To Genomic Analysis," Genome Research, pp. 1-4, 1995				
	C125	SANJOH, AKIRA et al., "Spatiotemporal Protein Crystal Growth Studies Using Microfluidic Silicon Devices," Journal of Crystal Growth, Vol. 196, pp. 691-702, 1999				
	C126	SCHWARTZ, DAVID C. et al., "Optical Mapping Approaches To Molecular Genomics," Current Opinion in Biotechnology, Vol. 8, pp. 70-74, 1997				
	C127	SKLAR, LARRY A. et al., "Sample Handling For Kinetics And Molecular Assembly In Flow Cytometry, SPIE, Vol. 3256, pp. 144-153, 1998				
NC	C128	STEMMER, WILLEM P. C. et al., "Rapid Evolution Of A Protein in vitro By DNA Shuffling," Nature, Vol. 370, pp. 389-390, 8/4/1994				

Examiner Signature Date Considered 7/13/06

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449B/PTO				Complete if Known			
		0N DIG	01 00UDE	Application Number	09/970,453		
INFORMATION DISCLOSURE				Filing Date	October 2, 2001		
STAT	STATEMENT BY APPLICANT			First Named Inventor	Shulamit Eyal		
	1			Art Unit	1641		
((use as many sheets as necessary)			Examiner Name	Lisa V. Cook		
Sheet	6	of	6	Attorney Docket Number	20174C-002410US		

		NON PATENT LITERATURE DOCUMENTS		
Examiner Cite Initials * No.1		Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		
WCI	C129	SWEET, RICHARD G., "Flow Sorters For Biologic Cells," pp. 177-189, no date		
	C130	THOMPSON, L. F. et al., "Introduction To Microlithography," 185th Meeting of the American Chemical Society, Seattle, WA, pp. 2 cover pages, 1-13, 3/20-25/1983	\prod	
	C131	THORSEN, TODD et al., "Dynamic Pattern Formation In A Vesicle-Generating Microfluidic Device," Physical Review Letters, Vol. 86, No. 18, pp. 4163-4166, 4/30/2001		
	C132	TODD, PAUL et al., "Cell Electrophoresis," pp. 217-229, no date	П	
	C133	UNGER, MARC A. et al., "Single-Molecule Fluorescence Observed With Mercury Lamp Illumination," Biotechniques, Vol. 27, No. 5, pp. 1008-1014, 11/1999		
	C134	VAN DEN BERG, A. et al., "Micro Total Analysis Systems," Proceedings of the μTAS '94 Workshop, University of Twente, The Netherlands, 17 pages, 11/21-22/1994		
	C135	VERPOORTE, ELISABETH M. J. et al., "Three-Dimensional Micro Flow Manifolds For Miniaturized Chemical Analysis Systems," J. Micromech. Microeng., Vol. 7, pp. 246-256, 1994		
	C136	VOLKMUTH, W. D. et al., "DNA Electrodiffusion In A 2D Array Of Posts, Physical Review Letters, Vol. 72, No. 13, pp. 2117-2120, 3/28/1994		
	C137	VOLKMUTH, W. D. et al., "DNA Electrophoresis In Microlithographic Arrays," Nature, Vol. 358, pp. 600-601, 8/13/1992		
	C138	WHITESIDES, GEORGE M. et al., "Flexible Methods For Microfluidics," Physics Today, pp. 42-48, 6/2001		
	C139	WHITESIDES, GEORGE M. et al., "Soft Lithography In Biology And Biochemistry," Annu. Rev. Biomed. Eng., Vol. 3, pp. 335-373, 2001		
	C140	WILBUR, JAMES L. et al., "Lithographic Molding: A Convenient Route To Structures With Sub- Micrometer Dimensions," Adv. Mater., Vol. 7, No. 7, pp. 649-652, 1995		
	C141	XIA, YOUNAN et al., "Reduction In The Size Of Features Of Patterned SAMs Generated By Microcontact Printing With Mechanical Compression Of The Stamp," Adv. Mater., Vol. 7, No. 5, pp. 471–473, 1995		
	C142	XU, BING et al., "Making Negative Poisson's Ratio Microstructures By Soft Lithography," Adv. Mater., Vol. 11, No. 14, pp. 1186-1189, 1999		
	C143	YANG, T. J. et al., "An Apertureless Near-Field Microscope For Fluorescence Imaging," Applied Physics Letters, Vol. 76, No. 3, pp. 378-380, 01/17/2000		
ycl	C144	YANG, XING et al., "A Lower Power MEMS Silicone/Parylene Valve," Solid-State Sensor and Actuator Workshop, Hilton Head Island, South Carolina, 4 pages, 6/7-11/1998		

60577608 vi

		1				
Examiner Signature	Olisa. K	Col	Date Considered	7/13	106	